

## **Section 3.1: Water Demand — Water System Overview**

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The City of Mountain View receives most of its water from two wholesale agencies, the SFPUC and the SCVWD. The City also has seven ground water wells, used for supplemental or emergency water supply and one irrigation well. The City is also in the process of developing a recycled water system. The City has two water storage reservoirs with a combined capacity of 6.7 million gallons. The City is also constructing two additional water storage reservoirs to bring the City's total storage capacity to 14 million gallons. Figure 2 shows Mountain View's water service area by wholesale source and Figure 3 identifies general locations of major distribution facilities associated with Mountain View's water sources. Both figures can be found at the end of this section.

There are also several small segments of the City served by California Water Service (Cal Water). These segments are highlighted in Figure 2. As Cal Water's service is separate from the City of Mountain View, information on their water supply is included in the Cal Water UWMP.

### **San Francisco Public Utilities Commission**

The City of Mountain View purchases approximately 90%, an average of 11.3 million gallons per day (MGD), or 35-Acre Feet/Day (AF/Day), of its water from the SFPUC. This water comes predominantly from the Sierra Nevada Mountains and is delivered through the Hetch-Hetchy aqueducts. SFPUC supplies several Santa Clara County communities, including Mountain View, through their 72-inch and 96 inch diameter Bay Division Pipelines.

SFPUC water also includes limited amounts of water produced in its watersheds and facilities in Alameda and San Mateo Counties. All SFPUC sources are disinfected with chloramines.

Mountain View's water purchases from the SFPUC, and those of the SFPUC's other wholesale customers, are defined by the "Settlement Agreement and Master Water Sales Contract (Master Contract)" executed in 1984. The contract expires on June 30, 2009. In terms of water, the Master Contract provides for a 184 million gallon per day (566 AF/Day) "Supply Assurance" to the SFPUC's wholesale customers, subject to reduction in the event of drought, water shortage, earthquake or rehabilitation and maintenance of the system. The SFPUC's wholesale customers have agreed to the allocation of the 184 MGD Supply Assurance among themselves, with each entity's share of the Supply Assurance set forth on a schedule adopted in 1993.

This Supply Assurance survives the termination of the Master Contract in 2009. Mountain View's supply assurance is 13.46 MGD (42 AF/Day).

### **Santa Clara Valley Water District**

Mountain View purchases approximately 10%, 1.2 MGD (3.7 AF/Day) on average, of its water from the SCVWD. Water purchased from the SCVWD is governed by a water sales agreement, providing Mountain View with a supply assurance from the SCVWD of 2 MGD (6.2 AF/Day). Mountain View receives water from the SCVWD through their 24-inch diameter West and Mountain View pipelines.

SCVWD's water system is comprised of local reservoirs, treatment facilities and a treated water distribution system. The SCVWD also imports water from the Sierra Nevada's via the Sacramento/San Joaquin Delta. Imported water is delivered to the SCVWD service area through the South Bay Aqueduct, the Santa Clara Conduit and the Pacheco Conduit. In addition to local reservoirs, treatment facilities, and a treated water distribution system, the SCVWD water system also includes a raw water distribution system, three groundwater sub-basins, and numerous ground-water recharge facilities.

This imported water is blended with local supplies at the District's water treatment facilities. All SCVWD water is disinfected with chloramines. Imported and local surface water supplies are treated at the District's water treatment facilities or are used for groundwater recharge. All SCVWD treated water is disinfected with chloramines.

### **Groundwater Wells**

The SCVWD has statutory authority for management of the Santa Clara County ground water basin. The City of Mountain View operates seven potable water (drinking water) wells and one irrigation well that pump water from this basin. Mountain View wells are used to augment the water supply and are available for emergency or maintenance conditions. The 2001 SCVWD Groundwater Management Plan, included as Appendix E, provides guidance for avoiding groundwater overdraft and land subsidence. Groundwater supplies are discussed in further detail in Section 3.3.

## **Recycled Water**

The City is in the process of developing a recycled water system, in conjunction with the Palo Alto Regional Water Quality Control Plant, to offset irrigation water consumption in the City's North Bayshore Area. Once constructed, the City anticipates the recycled water system, if fully utilized, could offset the City's demand for potable water and groundwater by approximately 10%. The recycled water project is discussed in greater detail in Section 10.

## **Irrigation Surface Water**

Mountain View Shoreline Golf links has a unique irrigation supply. Four ponds collect local surface water run-off and precipitation. The ponds are also supplemented by a local groundwater well near the golf links. The ponds are linked together by a series of pipelines and connect to a pump station feeding the irrigation system for the golf links.

During the peak irrigation periods, the pond supply is blended with approximately 1 MGD of potable water. This potable water use has been incorporated into the irrigation customer type detailed in Table 7. When the recycled water project is constructed, it may replace the use of potable water.

## **Conservation**

Mountain View participates with in the SCVWD's conservation programs to provide rebates for water efficient technologies such washing machine rebates and ultra low flush toilets. Mountain View's conservation programs are described in greater detail in Section 6.

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## Section 3.2: Water Demand – Groundwater

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The City of Mountain View operates seven potable groundwater wells to supplement water supply on an emergency basis. The City also operates an irrigation well at Shoreline Regional Park to supplement the use of pond water and potable water. The water pumped from the wells meets all drinking water standards and does not require treatment as the wells pump water from deep aquifers within the Santa Clara Valley sub-basin.

The Santa Clara Valley sub-basin is bounded by the Santa Cruz Mountains to the west and the Diablo Range to the east. The sub-basin has a surface area of approximately 225 square miles. The SCVWD estimates the sub-basin has a multi-year operational storage capacity of 350,000 acre-feet. The SCVWD defines operational storage capacity as the volume of groundwater that can be stored in a sub-basin as a result of SCVWD management measures. Operational storage capacity is generally less than total storage capacity as it accounts for the avoidance of land subsidence and high groundwater conditions, as well as available pumping capacity.

Although the annual storage capacity depends on current groundwater conditions and hydrology, the SCVWD has determined that for any given year, groundwater withdrawals in the Santa Clara Valley sub-basin should not exceed 200,000 acre-feet (assuming adequate water is available in storage) in order to avoid land subsidence.

Currently, the City of Mountain View pumps 112 acre-feet/year of groundwater. There is not any increase in groundwater pumping anticipated to meet projected 2030 average day demands. During multiple year dry scenarios, ground water pumping may increase to 1000 acre-feet by 2030. Mountain View's proposed pumping will not exceed the SCVWD's groundwater withdrawal policy. Detailed data on current and projected groundwater use is outlined in Table 4 and 5.

**Table 4: Current and Past Groundwater pumping – AF/Y**

Basin Name	2000	2001	2002	2003	2004	2005
SCVWD	1048	0*	68.8	92.6	133	112
Percent of Total Water Supply	7.3	0*	0.5	0.6	0.8	0.7

*\*Groundwater wells out-of-service for rehabilitation*

Prior to 2001, groundwater was a more significant source of water for Mountain View. However, Mountain View's water use strategy was modified to limit groundwater pumping to emergency and supplemental supply because of cost and operational considerations.

**Table 5: Projected Groundwater Pumping – AF/Y**

<b>Basin Name</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
SCVWD	134	202	157	112	69
Percent of Total Water Supply	1.0	1.0	1.0	1.0	<1.0

## **Section 3.3: Water Demand – Wholesale Supply**

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As discussed in Section 3.1, the City of Mountain View purchases most of its water from two wholesale agencies, the SFPUC and SCVWD. Prior to development of the UWMP, Mountain View staff worked in conjunction with these wholesale agencies to determine future water demands.

The SFPUC used a water management model (DSS Model) developed by Maddaus Water Management. The model was based upon Association of Bay Area Governments (ABAG ) 2002 growth projections, Mountain View customer usage account history, and projected plumbing code water savings. However, as noted in Section 2, 2001 was chosen as a base year for water consumption as water usage was in the normal range due to weather and economic conditions.

The SCVWD developed a separate water demand based on the Institute for Water Resources Municipal and Industrial Needs model. The SCVWD model correlates to the demands produced in the SFPUC model.

Water conservation savings are categorized in the UWMP as a supply source, rather than a reduction in demand, to provide a tracking mechanism. It is expected there will be additional savings from plumbing fixture changes-outs. The savings are attributed to enhanced conservation programs expected to be implemented by 2030.

Based on average annual water use, Mountain View's water consumption will increase approximately 15% over the next 25 years. This increase falls within the City's contractual water supply assurances and the current supply capacity of both wholesale sources.

**Table 6: Current and Planned Water Use**

<b>Water Supply Sources</b>	<b>2000</b>	<b>2005 (Modeled)</b>	<b>2005 (Actual)</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
SFPUC	11,840	12,970	11,258	13,890	14,114	14,338	14,562	14,786
SCVWD Treated Water	1,318	1,320	1,120	1,320	1,370	1,400	1,435	1,465
Groundwater	1,048	110	112	134	202	157	112	67
Additional Conservation	--	--	--	90	134	179	228	269
Shoreline Golf Links (Pond Water)	Included in Ground water	500	500	303	200	220	204	253
<b>TOTAL</b>	<b>14,200</b>	<b>14,900</b>	<b>12,990*</b>	<b>15,737</b>	<b>16,021</b>	<b>16,294</b>	<b>16,561</b>	<b>16,840</b>
<b>Alternate Source Recycled Water**</b>	--	--	0	600	900	1,200	1,200	1,200

*\*2005 total actual water usage has reduced demands due to higher than normal rainfall.*

*\*\*Assumes completion of recycled water project.*

*Use of Recycled water may offset potable water and Shoreline Golf Links water use.*



## Section 3.4: Water Demand — Demand By Customer Type

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Mountain View's water customers are divided into six categories:

- Single family residential
- Multi-family residential
- Commercial (includes mobile home and hotels)
- Industrial (includes institutional customers such as schools and hospitals)
- Irrigation (includes landscape irrigation)
- Other (includes construction water use)

Table 7 in this section details Mountain View's current and projected water use by each of these customer types. Estimated conservation savings, resulting from the installation of water saving plumbing fixtures, have been incorporated into the projected demands. Residential customers compose more than 50% of Mountain View's water use, followed by irrigation. Given current growth projections, the percentage distribution between residential customers and other account types is not anticipated to change dramatically in the future. Generally speaking, the percentage of water use by customer type is:

- Single family residential: 25%
- Multi-family residential: 30%
- Landscape irrigation: 25%
- Commercial: 15%
- Industrial: 5%

## **Basis for Water Demand Projections**

The water demand projections for this UWMP were developed as part of a series of technical studies performed in support of the Capital Improvement Program for the SFPUC Regional Water System. These studies include: *SFPUC Wholesale Customer Water Demand Projections* (URS 2004), *SFPUC Wholesale Customer Water Conservation Potential* (URS 2004), *SFPUC Wholesale Customer Recycled Water Potential* (RMC 2004), and *SFPUC 2030 Purchase Estimates* (URS 2004).

Water demand projections were developed in part using the Maddaus Water Management DSS model. Two main steps were involved in developing the model: (1) Establishing base-year water demand at the end-use level (such as toilets, showers), calibrating the model to initial conditions; and (2) Forecasting future water demand based on future demands of existing water service accounts and future growth in the number of water service accounts.

Establishing the base-year water demand at the end-use level is accomplished by breaking down total historical water use for each type of metered water service account (single family, multifamily, commercial, irrigation, etc.) to specific end uses, such as toilets, faucets, showers and irrigation. The model selected 2001 as the base year for consumption as it mirrored normal rainfall and historic demands.

Forecasting future water demand is accomplished by determining the growth in the number of water service accounts in a wholesale customer service area. Once these rates of change were determined, they were input into the model and applied to those accounts and their end water uses. The model also incorporates the effects of the plumbing and appliance codes on fixtures and appliances including toilets (1.6 gal/flush), showerheads (2.5 gal/minute), and washing machines (lower water use) on existing and future accounts.

The model also determined unit demand factors for both single-family and multi-family residences. Based on this model, single-family residents consume 181 gallons per day and multi-family residents consume 141 gallons per day.

## **Demand Data**

Table 7 on the following page details the demand data produced by the end use model. Mountain View's actual water demands in 2000 are higher than the forecasted total demands for 2005 due primarily to the downturn in the local economy. This downturn resulted in a dramatic reduction in water demand for the commercial and industrial accounts. The water demand for 2005 is also lower than the model due to reduced water demands in the winter and spring of 2005 resulting from higher than normal rainfall.

It should also be noted, the modeled number of multi-family units differs from the actual number of multi-family units shown in 2000 and 2005. This is due to a variation between the City's utility billing system and the model. The City's billing system considers town homes single-family residences and the model accounts for town homes as multi-family dwellings. Despite this difference in the allocation of dwelling units, data regarding actual and modeled water demand is consistent.

**Table 7: Water Demand by Customer Type**

<b>Year</b>	<b>Water Use Sectors</b>	<b>Single family</b>	<b>Multi-family</b>	<b>Commercial</b>	<b>Industrial</b>	<b>Landscape</b>	<b>Other</b>	<b>TOTAL</b>
2000	# of accounts	10,799	2,445	1,438	678	836	50	<b>16,246</b>
	Deliveries AF/Y	3,375	3,917	2,290	1,022	3,592	6	<b>14,202</b>
Projected 2005	# of accounts	11,081	2,503	1,484	641	863	66	<b>16,638</b>
	Deliveries AF/Y	3,151	3,505	1,876	548	3,049	6	<b>12,135</b>
Modeled 2005	# of accounts	12,808	837	1,178	422	733	50	<b>16,029</b>
	Deliveries AF/Y	3,401	3,762	2,170	790	3,793	14	<b>13,930</b>
2010	# of accounts	13,195	882	1,272	456	792	52	<b>16,649</b>
	Deliveries AF/Y	3,438	3,867	2,273	836	4,096	14	<b>14,524</b>
2015	# of accounts	13,668	913	1,319	472	820	54	<b>17,246</b>
	Deliveries AF/Y	3,474	3,889	2,307	855	4,244	15	<b>14,784</b>
2020	# of accounts	13,984	936	1,368	490	851	55	<b>17,681</b>
	Deliveries AF/Y	3,503	3,888	2,354	878	4,404	15	<b>15,042</b>
2025	# of accounts	14,159	945	1,419	508	883	56	<b>17,969</b>
	Deliveries AF/Y	3,498	3,861	2,409	902	4,567	16	<b>15,253</b>
2030	# of accounts	14,334	956	1,470	526	915	56	<b>18,257</b>
	Deliveries AF/Y	3,497	3,845	2,468	927	4,731	16	<b>15,484</b>

## Section 3.5: Additional Water Demand

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Mountain View's additional water demands are attributed to water loss, which is comprised of two components. One component is the anticipated losses in the distribution system due to meter inaccuracies and un-metered construction or public and health and safety uses such as fire suppression and water main flushing.

A second component of water loss is unaccounted-for water resulting from distribution system leaks or water main breaks. Mountain View's unaccounted-for water is approximately 5-8% of the City's total water use. However, the 2000 water losses were included within the metered water. The City has a robust infrastructure repair policy and it is anticipated annual water main replacements will keep water system losses to less than 8%.

**Table 8: Additional Water Demands and Losses- AF/Y**

<b>Water Use</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
Water Loss	-	850	1,020	1,040	1,060	1,070	1,080
Metered Water	14,200	12,140	14,520	14,790	15,040	15,250	15,490
<b>Total Water Use</b>	<b>14,200</b>	<b>12,990</b>	<b>15,540</b>	<b>15,830</b>	<b>16,100</b>	<b>16,320</b>	<b>16,570</b>

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## **Section 3.6: Water Demand — Water Transfer and Exchange Opportunities**

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The City of Mountain View has not pursued water transfer or exchange agreements with other retail water agencies. As discussed throughout the UWMP, Mountain View has two wholesale sources of water, ground water wells and a planned recycled water system enabling the City to provide customers with a reliable supply of water without the need to exchange or transfer water between other retail agencies on a long-term basis. However, the City does have water system inter-ties with the Cities of Sunnyvale and Palo Alto to assist in localized short-term water exchanges in the event of an emergency.

## **Section 3.7: Water Demand — Development Of Desalinated Water**

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Although located near the San Francisco Bay, the City of Mountain View does not have any plans to independently develop desalinated water as a potential water supply.

Although the City is not a participant at this time, a regional study is being developed by wholesale water agencies around the San Francisco Bay Area. This study is examining the feasibility of one or more desalinization facilities on the San Francisco Bay. If constructed, these facilities could provide a reliable alternate water supply for Bay Area communities.

## **Section 3.8: Water Demand — Resource Maximization/Import Minimization Plan**

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As Mountain View purchases water from wholesale agencies, the City's ability to influence regional processes to maximize water resources and minimize water importation is limited. However, the City actively participates in policy discussions regarding regional water supply through BAWSCA, the SFPUC and the SCVWD. The City has worked with these agencies to develop regional plans. Examples include the Integrated Regional Water Supply Master Plan being developed by BAWSCA and other regional water agencies and the Integrated Water Resources Plan being developed by the SCVWD.

**FIGURE 2**

**MOUNTAIN VIEW WATER SERVICE AREA**

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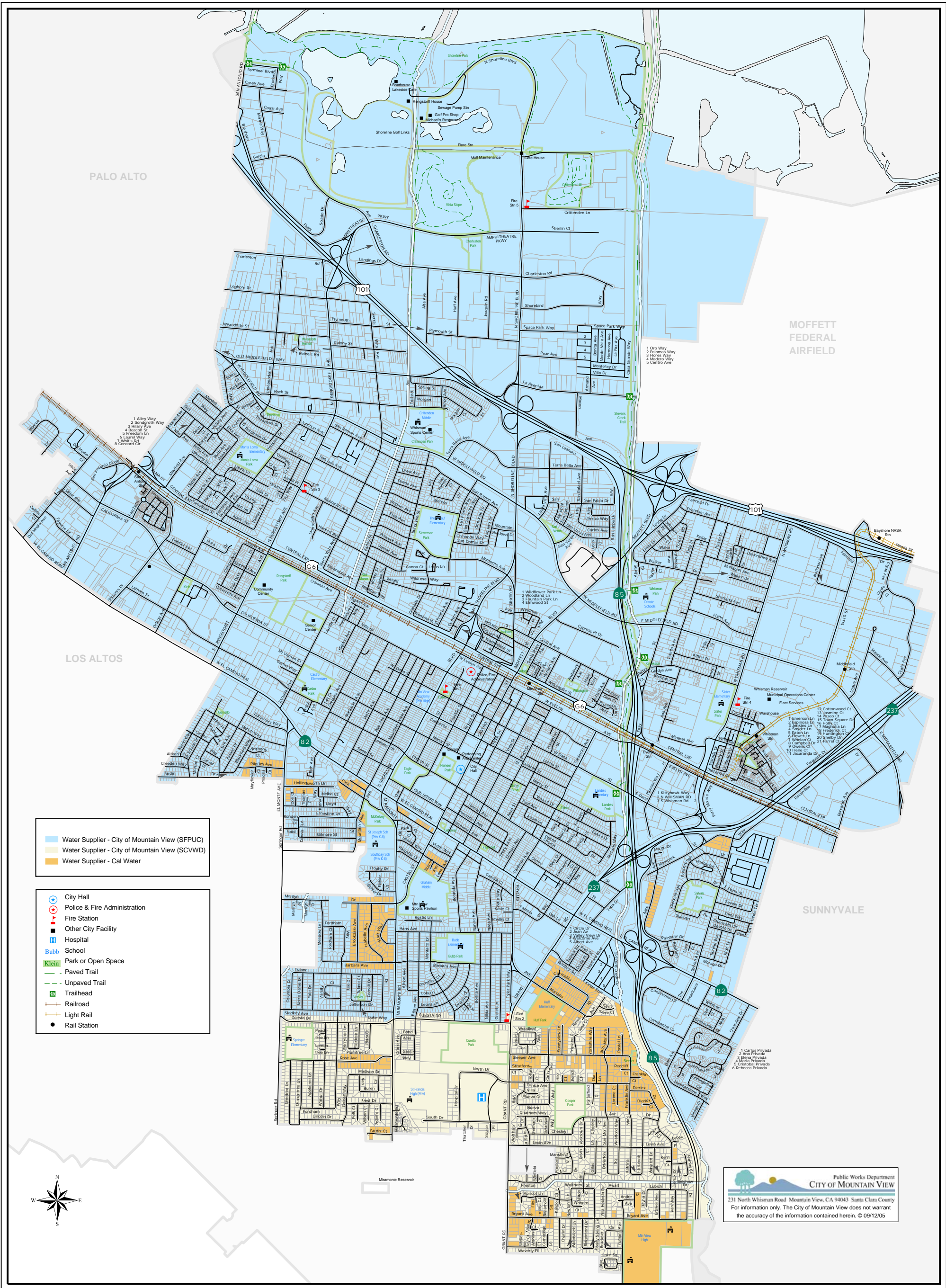
**FIGURE 3**

**MOUNTAIN VIEW DISTRIBUTION FACILITIES**

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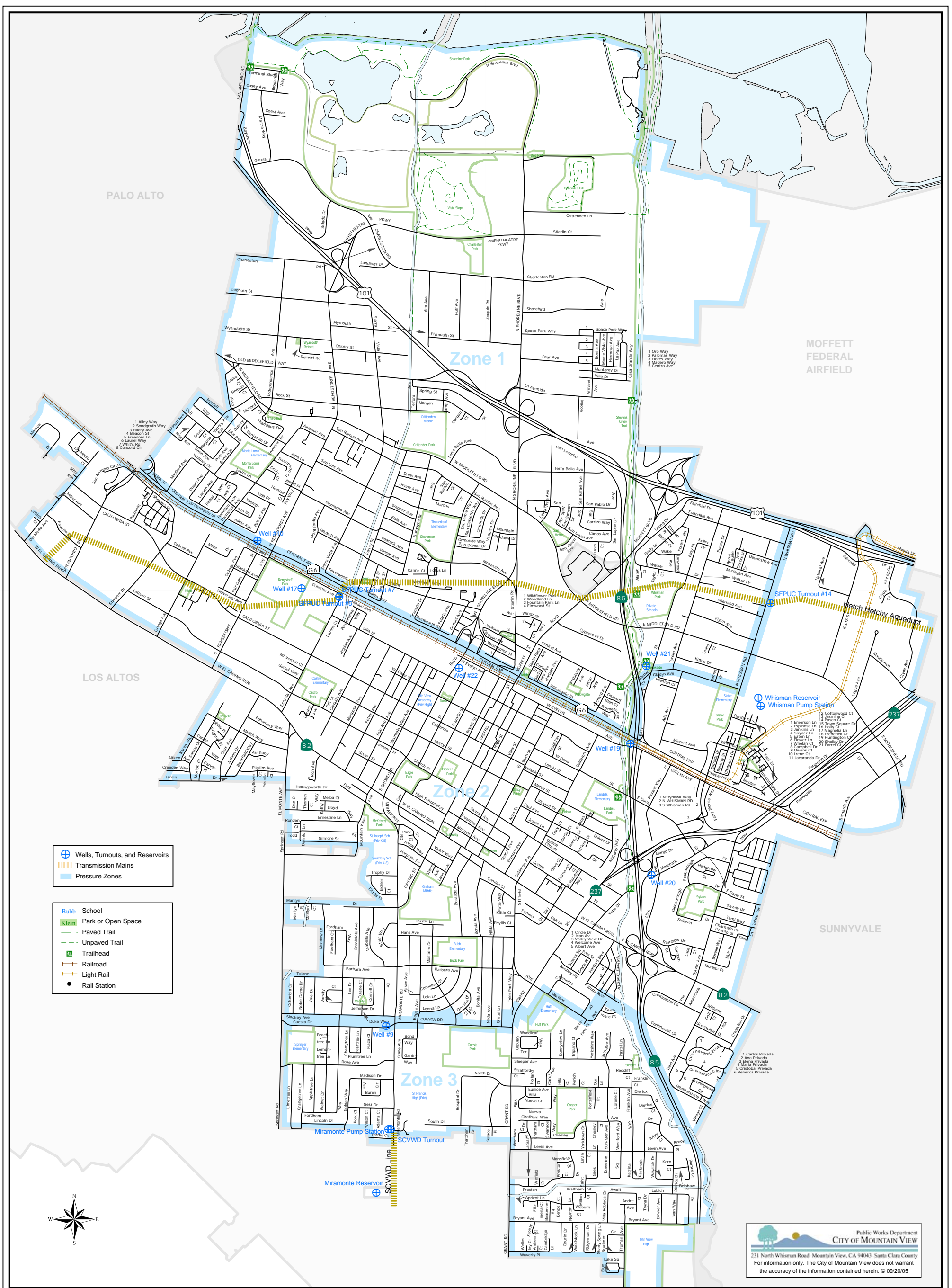
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# City of Mountain View Water Service Area





## Wells, Turnouts, and Reservoirs



## Section 4.1: Supply And Demand Comparison – Normal Water Year

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The following tables detail the totals of Mountain View’s water use and customer demands. As discussed earlier in this section, the City of Mountain View has adequate supply to meet the needs of it’s customers under normal water supply conditions until 2030.

The SCVWD’s modeling performed for this plan shows based on historic hydrology, additional investments in new supply will be necessary after 2015 beyond the IWRP Study 2003 “no regrets” portfolio investment. The SCVWD IWRP framework has identified various portfolios meeting future needs under a variety of risks scenarios. This framework will be utilized to determine the best investment opportunities so additional supplies will be available to meet demand in the years 2020 and beyond.

**Table 9: Projected Maximum Normal Water Year Supply – AF/Y**

	2010	2015	2020	2025	2030
<b>Supply</b>	15,737	16,021	16,294	16,561	16,840
<b>% of year 2005</b>	121	124	125	128	130

**Table 10: Projected Maximum Normal Water Year Demand – AF/Y**

	2010	2015	2020	2025	2030
<b>Demand</b>	15,541	15,829	16,092	16,319	16,568
<b>% of year 2005</b>	119	122	124	126	128

**Table 11: Projected Normal Year Supply and Demand Comparison – AF/Y**

	2010	2015	2020	2025	2030
<b>Supply Totals</b>	15,837	16,021	16,294	16,561	16,840
<b>Demand Totals</b>	15,541	15,829	16,092	16,319	16,568
<b>Difference (Supply minus Demand)</b>	196	192	202	242	272
<b>Difference as % of Supply</b>	1.2	1.2	1.2	1.4	1.6
<b>Difference as % of Demand</b>	1.3	1.2	1.3	1.5	1.6

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## Section 4.2: Supply And Demand Comparison – Projected Single-Dry-Year Supply And Demand

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Under a single dry-year drought scenario, the City of Mountain View can expect a 13% reduction in total wholesale supply as compared to normal delivery.

To offset this reduction, the City has the ability to increase groundwater pumping through its seven-groundwater wells. Demand reduction may also be achieved with the use of recycled water.

According to the SCVWD, the local groundwater aquifer has sufficient capacity to meet the City's needs. Tables 12 through 14 describe Mountain View's water supply and demand under this scenario. Mountain View took a conservative approach to this analysis and did not reduce demands during the single dry-year scenario.

**Table 12: Projected Single-Dry Year Water Supply – AF/Y**

	2010	2015	2020	2025	2030
<b>Supply</b>	15,737	16,021	16,294	16,561	16,840
<b>% of Projected Normal</b>	100	100	100	100	100

**Table 13: Projected Single-Dry Year Water Demand – AF/Y**

	2010	2015	2020	2025	2030
<b>Demand</b>	15,541	15,829	16,092	16,319	16,568
<b>% of Projected Normal</b>	100	100	100	100	100

**Table 14: Projected Single-Dry Year Supply and Demand Comparison – AF/Y**

	2010	2015	2020	2025	2030
<b>Supply Totals</b>	15,737	16,021	16,294	16,561	16,840
<b>Demand Totals</b>	15,541	15,829	16,092	16,319	16,568
<b>Difference (Supply minus Demand)</b>	196	192	202	242	272
<b>Difference as % of Supply</b>	1.2	1.2	1.2	1.4	1.6
<b>Difference as % of Demand</b>	1.3	1.2	1.3	1.5	1.6

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## Section 4.3: Supply and Demand Comparison – Projected Multiple Dry-Year Supply And Demand

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Under a multiple dry-year drought scenario, the City can expect a 20% reduction in SFPUC wholesale supply and a 5% reduction in SCVWD wholesale supply. For this analysis, water demand was reduced by 5% to reflect the anticipated change in water consumption habits in a multiple dry-year scenario.

As with a single year drought scenario, the City can offset this reduction through additional groundwater pumping or potentially diverting irrigation demands through the use recycled water. The SCVWD has indicated the local groundwater aquifer has sufficient capacity to meet the City's needs. Tables 15 through 29 detail Mountain View's supply and demand conditions under this scenario.

The District's long-term planning goal is ensure that in any given year there is never a shortage greater than 5% of the conservation demand. IWRP 2003 found shortages up to 5% could be managed through demand reduction programs and voluntary cutbacks without significant economic losses to the community. Based on the long term planning and modeling analysis performed by the District in the development of the 2005 UWMP, countywide demands can be reliably met if additional investments beyond the IWRP 2003 "no regrets" scenario are undertaken.

**Table 15: Projected Supply – Multiple-year Dry Period Ending in 2010 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Supply</b>	15,737	14,850	14,850
<b>% of Projected Normal</b>	99.3	93.7	93.7

**Table 16: Projected Demand – Multiple-year Dry Period Ending in 2010 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Demand</b>	15,441	14,764	14,764
<b>% of Projected Normal</b>	100	95.6	95.6

**Table 17: Projected Supply & Demand Comparison Multiple-dry Year  
Period Ending in 2010 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Supply Totals</b>	15,737	14,850	14,850
<b>Demand Totals</b>	15,441	14,764	14,764
<b>Difference (Supply minus Demand)</b>	296	86	86
<b>Difference as % of Supply</b>	1.9	0.6	0.6
<b>Difference as % of Demand</b>	1.9	0.6	0.6

**Table 18: Projected Supply – Multiple-year Dry Period Ending in 2015 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Supply</b>	16021	15196	15196
<b>% of Projected Normal</b>	100	94.9	94.9

**Table 19: Projected Demand – Multiple-year Dry Period Ending in 2015 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Demand</b>	15829	15037	15037
<b>% of Projected Normal</b>	100	95	95

**Table 20: Projected Supply & Demand Comparison During Multiple-Dry Year  
Period Ending in 2015 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Supply Totals</b>	16021	15196	15196
<b>Demand Totals</b>	15829	15037	15037
<b>Difference (Supply minus Demand)</b>	192	159	159
<b>Difference as % of Supply</b>	1.2	1.0	1.0
<b>Difference as % of Demand</b>	1.2	1.1	1.1

**Table 21: Projected Supply — Multiple-year Dry Period Ending in 2020 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Supply</b>	16294	15348	15348
<b>% of Projected Normal</b>	100	94.2	94.2

**Table 22: Projected Demand — Multiple-year Dry Period Ending in 2020 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Demand</b>	16092	15288	15288
<b>% of Projected Normal</b>	100	95	95

**Table 23: Projected Supply & Demand Comparison During Multiple-dry Year Period Ending in 2020 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Supply Totals</b>	16294	15348	15348
<b>Demand Totals</b>	16092	15288	15288
<b>Difference (Supply minus Demand)</b>	202	60	60
<b>Difference as % of Supply</b>	1.2	.4	.4
<b>Difference as % of Demand</b>	1.2	.4	.4

**Table 24: Projected Supply — Multiple-year Dry Period Ending in 2025 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Supply</b>	16561	15894	15894
<b>% of Projected Normal</b>	100	96.0	96.0

**Table 25: Projected Demand — Multiple-year Dry Period Ending in 2025 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Demand</b>	16319	15503	15503
<b>% of Projected Normal</b>	100	95	95

**Table 26: Projected Supply & Demand Comparison During  
Multiple-dry Year Period Ending in 2025 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Supply Totals</b>	16561	15894	15894
<b>Demand Totals</b>	16319	15503	15503
<b>Difference (Supply minus Demand)</b>	242	391	391
<b>Difference as % of Supply</b>	1.5	2.5	2.5
<b>Difference as % of Demand</b>	1.5	2.5	2.5

**Table 27: Projected Supply – Multiple-year Dry Period Ending in 2030 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Supply</b>	16840	15859	15859
<b>% of projected normal</b>	100	94.2	94.2

**Table 28: Projected Demand – Multiple-year Dry Period Ending in 2030 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Demand</b>	16568	15740	15740
<b>% of projected normal</b>	100	95	95

**Table 29: Projected Supply & Demand Comparison During Multiple-dry Year  
Period Ending in 2030 – AF/Y**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Supply totals</b>	16840	15859	15859
<b>Demand totals</b>	16568	15740	15740
<b>Difference (supply minus demand)</b>	288	119	119
<b>Difference as % of Supply</b>	1.6	0.7	0.7
<b>Difference as % of Demand</b>	1.6	0.7	0.7

## **Section 5.1: Water Supply Reliability — Wholesale Water Supply**

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The reliability of Mountain View's water supply from each wholesale sources is described below and corresponding data is included in Tables 30 through 32.

### **Reliability of San Francisco Public Utilities Commission Water Supply**

The SFPUC can meet the water demands of its retail and wholesale customers under most conditions. However, the SFPUC can reduce water deliveries during droughts, emergencies, and scheduled maintenance activities. The Interim Water Shortage Allocation Plan (IWSAP) between the SFPUC and its wholesale customers, including the City of Mountain View, provides the SFPUC with the ability to reduce water supply by up to 20% on an average, system-wide basis.

To ensure long-term water reliability is maintained, the SFPUC is undertaking a major water service improvement program or WSIP. The WSIP will deliver numerous capital improvements throughout the regional water system aimed at enhancing its water service mission of providing high quality water to its customers in a reliable, affordable and environmentally sustainable manner.

### **Reliability of Santa Clara Valley Water District Supply**

The SCVWD can meet the water demand of its retail customers; however, like the SFPUC, the SCVWD can reduce water deliveries during droughts, emergencies and for scheduled maintenance activities by up to 5%. The SCVWD is also in the process of developing and implementing a program to provide long-term water reliability through major systems renovations and water treatment process upgrades.

The SCVWD's long-term planning goal is ensure in any given year there is never a shortage greater than 5% of the conservation demand. IWRP 2003 found shortages up to 5% could be managed through demand reduction programs and voluntary cutbacks without significant economic losses to the community. Based on the long term planning and modeling analysis performed by the SCVWD in the development of the UWMP 2005, countywide demands can reliably be met if additional investments beyond the IWRP 2003 "no regrets" scenario are undertaken.

**Table 30: Supply Reliability – AF/Y**

<b>Multiple Dry Water Years</b>					
<b>Normal Water Year</b>	<b>Single Dry Water Year</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>
SFPUC	11582	11582	9822	9822	9822
SCVWD Treated	1254	1254	1254	1254	1254
Total Imported	12736	12736	10376	10376	10376
Percent of Normal	91	91	80	80	80

**Table 31: Basis of Water Year Data**

<b>Water Year Type</b>	<b>Historic Sequence</b>
Normal Water Year	2001 (Base Year)
Single-Dry Water Year SFPUC	1977
Multiple-Dry Water Years SFPUC	1987, 1988, 1989, 1990, 1991, 1992
Single-Dry Water Year SCVWD	1977
Multiple-Dry Water Years SCVWD	1987, 1988, 1989, 1990, 1991, 1992

Table 32 below describes factors resulting in the inconsistency in supply. Mountain View, like all California Cities, experiences variations in climactic conditions (drought versus normal or wet conditions), which in turn causes variability in water supply conditions.

**Table 32: Factors resulting in inconsistency of supply**

<b>Name of supply</b>	<b>Legal</b>	<b>Environmental</b>	<b>Water Quality</b>	<b>Climatic (Drought)</b>
SFPUC				X
SCVWD Treated Water Supply				X
SCVWD Groundwater				X

## Section 5.2: Water Supply Reliability — Water Quality Impacts On Reliability

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The City of Mountain View provides high quality water, meeting all current State and Federal water quality standards, through both of its wholesale sources and groundwater wells. Having three distinct sources of water provides Mountain View with the flexibility to augment supply if a temporary water quality issue arises in one supply source and no changes in water supply are anticipated.

**Table 33: Current & Projected Water Supply Changes Due to Water Quality  
(Percentage)**

Water Source	2005	2010	2015	2020	2025	2030
SFPUC	0	0	0	0	0	0
SCVWD	0	0	0	0	0	0
SCVWD Groundwater	0	0	0	0	0	0

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## Section 5.3: Water Supply Reliability – Minimum Supply For Next Three Years

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This section requires Mountain View to detail the absolute minimum supply of water the City will receive from its wholesale sources based on the driest historical period for each source.

The SFPUC and the SCVWD determined their driest period was 1987-1992. As discussed earlier in this plan, the SFPUC derives the majority of their water from the Sierra Nevada Mountains, while the SCVWD derives their supply from several sources including water collections and retention reservoirs located throughout Santa Clara County.

Both SCVWD and SFPUC are involved in maintaining reliability of the water supply. Both agencies have studied facilities and have invested and planned projects to maintain the reliability of the water supply. Mountain View has made similar investments by construction of new wells, reservoir and other capital pipeline projects.

Based on the information provided by the wholesale agencies, the City's absolute minimum supply is 20% below normal. However, as discussed in the previous section, the City can utilize its groundwater wells to close the supply gap if needed. The data provided by the SFPUC and SCVWD is included in Table 34 below.

**Table 34: Three-Year Estimated Minimum Water Supply – AF/Y**

Source	1987	1988	1989	Normal (2001)
SFPUC	11,582	9,821	9,821	12,606
SCVWD	1,254	1,254	1,254	1,302
<b>TOTAL</b>	<b>12,836</b>	<b>11,075</b>	<b>11,075</b>	<b>13,908</b>

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## Section 6: Water Conservation Demand Management

### Measure Implementation

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The City of Mountain View is committed to reducing water demand by implementing conservation programs. Through these programs, the city estimates it can reduce water demand by approximately 5 to 8 percent over the next 25 years. Several of these programs are discussed below. Detailed data on all of the water conservation programs implemented by the City are included in Appendix F.

#### Conservation Program Overview

Metering, Rates and Water-Conserving Guidelines: The City meters all water connections and bills customers using an increasing block (tiered) rate structure. The tiered rate structure provides an economic incentive to conserve water as the base water rate increases with water consumption. The City's Community Development Department also provides private developers and property owners with water-efficient landscape guidelines and a list of water-conserving plants.

Residential Water Surveys: Mountain View, through the SCVWD, conducts audits of single and multi family residences and notifies residents of high water usage to help identify water loss due to leaking or defective pipes. Mountain View also encourages all residential water users to participate in the SCVWD's Water Wise House Call Survey program by advertising in the local papers and providing information on the City's website and in Mountain View's annual water quality report. On average, approximately 600 residential water audits are performed each year.

Turf Audits: The City works with the SCVWD to send literature, perform free site evaluations, and conduct turf audits for business owners with more than one acre of landscaping. The program uses satellite technology and computer imaging to create water budgets for landscaped areas, providing information on seasonal usage, watering techniques, and plant types to conserve water. An average of 10 turf audits are performed every year.

Plumbing Retrofits: The City of Mountain View, through the SCVWD, provides economic incentives for residential and business owners who retrofit plumbing and purchase Ultra-Low Flush Toilets (ULFT). The SCVWD provides low-flow showerheads, kitchen and bath faucet aerators and toilet leak detection tablets at no cost to Mountain View water customers.

They also provide economic incentives for the purchase of high efficiency toilets (HETs), which use 20% less water than ultra-low flush toilets. For example, in the last five years, the City has distributed over 1,300 low-flow showerheads.

Washing Machine Incentive Program: The SCVWD provides up to \$150 rebates to Mountain View's residential water customers for the purchase of high-efficiency washing machines and up to \$350 for commercial machines. Over 1,200 washing machine rebates have been issued since 2001.

## **Conservation Program Implementation**

The SCVWD administers most the water retailer conservation programs for the City of Mountain View and other public and private water utilities in Santa Clara County. Both the City of Mountain View and the SCVWD are members of the California Urban Water Conservation Council (CUWCC), and have agreed to make a good faith effort to implement all the CUWCC's urban water conservation Best Management Practices (BMPs), including the water conservation measures discussed earlier in this section. The cost of implementing the water conservation measures is bundled into the wholesale water rates from the SCVWD.

BMPs are functionally equivalent to the Demand Management Measures identified in the Urban Water Management Plan Act and Mountain View submits annual reports to the CUWCC identifying implementation activities on every BMP. To satisfy this section of the UWMP, copies of the CUWCC annual reports from 2001 to 2005 are included as Appendix F. A list of the Mountain View's water retailer BMP's follows:

## **Best Management Practices**

- Single-family and multi-family water-use surveys
- Residential plumbing retrofits
- Water audits and leak detection/repair
- Metered water connections with associated per-unit water use fees
- Large landscape audits
- High efficiency washing machine rebates
- Public information programs
- School Education programs
- Conservation programs for commercial/industrial accounts
- Conservation pricing
- Employment of a conservation coordinator
- Water waste prohibitions
- Residential ultra-low flush toilet replacement programs

## **Section 7.1: Water Shortage Contingency Plan**

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To address potential water supply shortages resulting from drought, natural disaster or wholesale water supply system failures, Mountain View has developed a Water Shortage Contingency Plan. As defined by the Urban Water Management Plan Act, this contingency plan details four water supply reduction scenarios: 10, 25, 40 and 50 percent. Each stage of action is discussed in detail below.

### **Water Shortage Contingency Plan Stages of Action**

The City will consider implementing each stage of the Water Shortage Contingency Plan when Mountain View's water supply is reduced by a specific level: 10%, 20%, 40% and 50%. Each stage of action in the Water Shortage Contingency Plan is discussed on the following pages and is also detailed on Table 35 at the end of this section.

Implementation of the plan will be contingent upon adoption of draft Water Conservation Ordinances, Appendix G, by the City Council. A constant factor in each water supply reduction scenario is the enforcement of five existing water prohibitions currently incorporated into Mountain View's City Code. These prohibitions, which are currently enforced on a complaint basis, are:

1. Preventing water runoff on sidewalks.
2. Wasting water due to broken or defective plumbing, sprinkler, watering or irrigation systems.
3. Serving water in restaurants, except on request.
4. Installing single-pass cooling systems on new construction.
5. Using hoses without an automatic shut-off device for cleaning paved surfaces.

### **Stage 1: 10 Percent Water Supply Reduction**

A 10 percent water supply reduction scenario will intensify existing conservation programs, focusing attention on public information and outreach. Irrigation for City parks and roadway landscaping would be reduced by 15 percent.

Mountain View will also add a prohibition on washing cars, buses, boats, or other vehicles and equipment using a hose without an automatic shut-off device.

## **Stage 2: 25 Percent Water Supply Reduction**

A 25 percent water supply reduction program implements six additional water use prohibitions, focusing on further reducing irrigation and ornamental water use. Attention would be focused on water audits of properties having significant landscape irrigation needs. These property owners or managers would be provided information on water budgeting and weather based irrigation use. City park and roadway landscape irrigation would also be reduced by 33 percent. The six additional water use prohibitions are:

- Cleaning any paved or hard surface with water.
- Operating decorative fountains.
- Using drinking water for construction purposes except where reclaimed water is not available.
- Irrigating landscape from 9:00 a.m. to 3:00 p.m. (9:00 a.m. to 6:00 p.m. during daylight savings time).
- Draining or refilling swimming pools except for health and safety reasons.
- Using an average of more than 750 gallons per day (gpd) in a single-family residence in two consecutive billing periods.

## **Stage 3: 40 Percent Water Supply Reduction**

City park and roadway landscape irrigation will be reduced by a total of 50% and this scenario will also implement four additional prohibitions to the 25 percent program.

The four new water use prohibitions are:

- Using an average of more than 620 gpd in a single-family residence in two consecutive billing periods.
- Deferring landscape (excluding trees) installation at new commercial construction.
- Washing vehicles, except in automatic car washes using recycled water.
- Filling new swimming pools.

The City also has the option of implementing two optional water use prohibitions under the 40% water reduction scenario. These are:

- Possible prohibition of all turf irrigation.
- Possible requirement that all homes sold in the City be retrofitted with Ultra low flush toilets (ULFTs).

#### **Stage 4: 50 Percent Water Supply Reduction**

Under a 50 percent water supply reduction program, the City will consider prohibiting any new development and limiting single-family water use to 500 GPD in two consecutive billing periods. In addition, park and roadway landscape irrigation would be reduced by a total of 60 percent from pre-drought levels.

Enforcement of all water use prohibitions under the previous water reduction scenarios would be intensified and penalties would be assessed for noncompliance. Penalties would be determined at the time a 50% reduction program is considered.

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**Table 35: Mountain View's Water Shortage Contingency Plan**

	<b>Current Program</b>	<b>STAGE 1 10 Percent Program</b>	<b>STAGE 2 25 Percent Program</b>	<b>STAGE 3 40 Percent Program</b>	<b>STAGE 4 50 Percent Program</b>
<b>Prohibition</b>					
Cleaning sidewalks, driveways, patios, parking lots or other paved or hard-surfaced areas without a positive automatic shutoff device.	X	X	X	X	X
Flooding and water runoff on sidewalks.	X	X	X	X	X
Washing cars, buses, boats, trailers or other vehicles without a positive automatic shutdown valve on the end of the hose.	X	X	X	X	X
Wasting water due to broken or defective plumbing, sprinkler, watering or irrigation systems.	X	X	X	X	X
Serving water in restaurants, except upon request.	X	X	X	X	X
Single-pass cooling systems on new construction.	X	X	X	X	X
Operating decorative fountains.			X	X	X
Using drinking water for construction purposes, except where reclaimed water is unavailable.			X	X	X
Irrigating landscape from 9:00 a.m. to 3:00 p.m. (9:00 a.m. to 6:00 p.m. during daylight savings time).			X	X	X
Flushing hydrants, except for public health or safety.			X	X	X
Draining or refilling of swimming pools except for health and safety reasons.			X	X	X
Use of potable water by a single-family residence in excess of an average of 750 gallons per day in two consecutive billing periods.			X	X	X
Deferred landscaping of new commercial construction; however, trees may be planted at the discretion of the property owner.			Voluntary	X	X
Use of potable water by a single-family residence in excess of an average of 620 gallons per day in two consecutive billing periods.				X	X
Washing cars, except in automatic car washes using recycled water.				X	X
Filling new swimming pools.				X	X
Use of potable water for irrigation.				Considered	X
Sale or resale of a single-family residence or commercial building with toilets using greater than 1.6 gallons of water per flush or shower heads using greater than 2 gallons of water per minute.				Considered	Considered
Operation of a pool without a cover.					X
Refilling existing private swimming pools.					X
Use of potable water by a single-family residence in excess of an average of 500 gallons per day in two consecutive billing periods.					X
New hookup moratorium.					Considered

<b>Water Shortage Contingency Plan Stages of Action Other Elements:</b>	<b>Current Program</b>	<b>STAGE 1 10 Percent Program</b>	<b>STAGE 2 25 Percent Program</b>	<b>STAGE 3 40 Percent Program</b>	<b>STAGE 4 50 Percent Program</b>
Water Savings in City Parks under the different Stages		15 Percent	33 Percent	50 Percent	60 Percent
Enforcement		Complaint Basis*	Complaint Basis*	Active Patrol**	Active Patrol**
<b><u>Outreach:</u></b>					
Landscape water conservation requirements for new commercial, industrial, institutional, governmental and multi-family developments (prescriptive approach).	X	X	X	X	X
Public information program.	X	X	X	X	X
School education.	X	X	X	X	X
Showerhead retrofit program.	X	X	X	X	X
Ultra-low-flush toilet retrofit program.	X	X	X	X	X
Full-time Water Conservation Coordinator.	10% Position	10% Position	50% Position	75% Position	100% Position
Low-water-use washing machine incentive program.	X	X	X	X	X
Quarterly "View" articles, annual water quality report article and web site updates.			X	X	X
<b><u>Monitored Water Usage:</u></b>					
Metering of all connections.	X	X	X	X	X
Enforce State requirements for ultra-low-flush toilets in new construction.			X	X	X
Residential water audits.			X	X	X
Large commercial and multi-family user audits.			X	X	X
Turf audits for irrigators over one acre.				X	X
Distribution system water audits, leak detection and repair.				X	X
Allocation system for all residents and businesses.					Possible
<b><u>Cost Incentives:</u></b>					
Conservation pricing/inverted rates.	X	X	X	X	X
Add additional water rate tier to current three-tiered structure.				X	X
Penalties assessed for noncompliance.				X	X

**\*Complaint basis enforcement:**

- Two education/warning visits or phone calls from Water Division personnel.
- Third warning visit from Police/Code Enforcement; fourth complaint or blatant violation cited by Police, with possible flow restriction.
- Upper-use violation receives one warning letter in the first billing period if the limit is exceeded; fine issued in second billing period.

**\*\* Active Patrol enforcement:**

- City patrolled by Water Division personnel and Code Enforcement.
- Citation after second warning; monetary fines assessed and possible flow restriction.

## Water Supply Shortage Conditions

A reduction in Mountain View's water supply could be the result of a number of factors including drought, natural disaster or water supply system failure. As Mountain View receives the majority of its water from the SFPUC, any supply reduction from this water source will have the greatest effect on the City. However, large-scale water shortages, 40% and 50%, may also be attributed to reductions in Mountain View's other supplies, including the SCVWD wholesale supply and groundwater. A potential water supply shortage is detailed in Table 36 below.

**Table 36: Potential Water Supply Shortage Scenario**

Stage	Water Supply Conditions	Percent Shortage
1	Reduction in supply from the SFPUC.	10%
2	Further reduction in supply from the SFPUC.	25%
3	Reduction in supply from both the SFPUC and SCVWD.	40%
4	Reduction in supply from both agencies and SCVWD restrictions on groundwater pumping.	50%

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## Section 7.2: Water Shortage Contingency Plan Use Monitoring Procedures

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In order to measure the effectiveness of the Contingency Plan water use reductions, staff will analyze consumption trends and monitor daily wholesale water use and sewer discharge data. Based on this analysis, field staff will be dispatched to respond to and inspect water-wasting activities. Table 37 below summarizes these monitoring mechanisms and how they will be used.

**Table 37: Water Use Monitoring Mechanisms**

<b>Mechanisms for determining actual reductions</b>	<b>Summary of Data Available</b>
Monitoring daily production data Conduct weekly oversight of data.	Daily meter reads of water supply (SFPUC & SCVWD) and wells.
Monitoring PARWCQP monthly discharges data	Evaluate sewer discharge data for correlations to reduction in water consumption; recycled water meter readings (in future).
Conservation ordinance enforcement	Field staff to enforce water waste activities such as malfunctioning irrigation systems or other waste activities as described in conservation ordinances.
Hand held meter reading device flags high usage	Hand held meters retrieve data by customer account type. The readers flag high usage accounts and the customer is notified of high water use.
Bi-monthly consumption report comparisons	Customized Utility billing system reports that indicate consumption by account type or by meter. The reports can be compared at the completion of the billing cycle (bi-monthly for most accounts).
Parks Division monthly meter reads	Coordinate interdepartmental data share of monthly irrigation meter reads.

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## Section 7.3: Analysis of Revenue Impacts of Reduced Sales During Water Shortages

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Mountain View's current water rates cover the cost of wholesale water purchases, staffing to operate the City's water system, ongoing maintenance and major capital replacement and improvement projects. Water rates are composed of a flat fee and a per unit fee for water consumed. Water rates are currently set to fully recover ongoing annual costs and a base level of annual capital improvement projects and reserves.

If water supply is reduced, water consumption will also be reduced and City water fund operating revenues will decline. Table 38 on the following page shows the revenue impacts of a water shortage at a 10%, 25%, 40% and 50% water supply reduction. Revenue reductions shown in this table do not have a 1:1 ratio as Mountain View has a tiered rate structure where the water rate increases with increased consumption. If water supply is reduced, water use reductions would first come from the highest tier, causing the percentage of revenue reduction to exceed the water supply reduction.

In the event of a water reduction, City staff will consider ways to correct the revenue shortfall depending on the severity of the water shortage and the City's ability to recover both operationally and financially. Actions the City will consider include adjusting the water rate structure and implementing water use surcharges. Operational expenditure reductions may also be needed, including hiring freezes, use of salary savings from vacant positions, use of reserve funds, deferring capital projects, and reducing staff.

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**Table 38: Water Supply Reduction Revenue Impacts**

	<b>STAGE 1 10 Percent Program</b>	<b>STAGE 2 25 Percent Program</b>	<b>STAGE 3 40 Percent Program</b>	<b>STAGE 4 50 Percent Program</b>
<b>Actions and Conditions that Impact Revenues:</b>				
Reduced Water sales (based on average annual water revenue of \$13,700,000)	<\$2,100,000>	<\$4,400,000>	<\$6,500,000>	<\$9,100,000>
Penalty assessments for noncompliance	Negligible	Negligible	\$15,000	\$30,000
Monetary incentive for automated billing	Negligible	<\$150,000>	<\$150,000>	<\$150,000>
<b>Actions and Conditions that Impact Expenditures:</b>				
Reduction in water supply costs (based on total water supply of 5,800,000 units annually)	<\$656,000>	<\$1,640,000>	<\$2,300,000>	<\$3,300,000>
Treatment expense	No Change	<\$7,500>	<\$20,000>	<\$25,000>
Utility expense (Pumping, gas and electric)	No Change	<\$25,000>	<\$40,000>	<\$50,000>
Increased Code Enforcement expenses	No Change	No Change	\$100,000	\$200,000
O&M costs (Primarily mailing and advertising costs to encourage conservation)	No Change	\$10,000	\$20,000	\$25,000
<b>Proposed Measures to Overcome Revenue Impacts:</b>				
Add additional rate tier		X	X	X
Monetary incentives to encourage automated billing		X	X	X
Monthly billing (increase interest earnings)			X	X
Implement a one-time emergency surcharge			X	X
Develop new rate structure with fixed costs covered by flat rate			X	X
Borrow funds – loan/bond				X
<b>Proposed Measures to Overcome Expenditure Impacts:</b>				
Moratorium on new hires/ Use savings from vacant Water Fund positions		X	X	X
Consider outsourced utility billing			X	X
Consider defer capital improvement projects		X	X	X
Consider use of reserves for short-term funding		X	X	X
Consider reduce staffing		X	X	X
Moratorium on new connections (Mandated in the Water Conservation Ordinance)				X

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## Section 8: Catastrophic Supply Interruption Plan

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In Mountain View, a catastrophic water emergency is a loss of water supply from Mountain View's wholesale water sources due to a severe earthquake or other major disaster. For example, a severe earthquake on the San Andreas or Hayward fault could cause SFPUC deliveries to be compromised for up to sixty days, leading to a supply reduction of up to 90 percent. Earthquakes along these or other faults may also cause a supply disruption from the City's SCVWD source, which represents 10% of the City's water supply.

To help mitigate the effects of such events, the City has prepared a water utility sub-chapter for the City's Emergency Response Plan. This plan is a confidential document prepared in accordance with the Federal Bioterrorism Act and Department of Homeland Security guidelines. Based on general information in the plan and depending on the type and severity of an emergency, the City will take corrective measures. These measures include isolating water storage reservoirs, isolating portions of the water system or deploying emergency generators to operate groundwater wells. In an emergency situation, the City will still have the ability to provide a minimum amount of water to customers for life safety and sanitary provisions. Table 39 below discusses the general actions to be taken following a major disaster.

**Table 39: Preparation Actions for a Catastrophe**

Possible Catastrophic Event	Summary of Actions
Earthquake	Isolate water storage reservoirs and activate groundwater wells
Regional Power Outage	Deploy and activate portable generators
Water Quality event	Isolate portions of the system affected by the event

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## Section 9: Wastewater

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The City of Mountain View is a partner in the Palo Alto Regional Water Quality Control Plant (RWQCP), which treats all of Mountain View's wastewater. The RWQCP provides primary, secondary, and tertiary treatment of all wastewater to allow the treated water to be discharged into the San Francisco Bay. All of the RWQCP's treated wastewater meets California Health and Safety Codes.

The RWQCP has a 40.0 million gallon per day (MGD) (122.8 AF/Day) average annual treatment capacity, which translates to 15.1 MGD (46.3 AF/Day) average annual wastewater capacity for the City of Mountain View. The RWQCP currently treats an average of 8.4 MGD (25.8 AF/Day) of Mountain View's wastewater. Table 40 below describes collection and treatment of wastewater from the City of Mountain View. While water consumption decreased between 2000 and 2005, wastewater collection increased due to groundwater infiltrations resulting from increased groundwater levels. The City is evaluating the extent of the infiltration and methods to diminish it.

The treated water also meets all standards for use as recycled water. Mountain View plans to construct a recycled water system, in cooperation with the RWQCP and the City of Palo Alto, to utilize this resource. The plan to construct the recycled water system is discussed in Section 10.

**Table 40: Wastewater Collection and Treatment – MGD & AF/Y**

	2000	2005	2010	2015	2020	2025	2030
Wastewater collected (MGD)	8.0	8.4	9.5	10	10.5	11	11.5
Wastewater treated (MGD)	8.0	8.4	9.5	10	10.5	11	11.5
Volume of treated water meeting recycled water quality (MGD)	8.0	8.4	9.5	10	10.5	11	11.5
AF/Day Conversion	23.4	25.8	29.2	30.7	32.2	33.8	35.3
<b>AF/Y</b>	<b>8,889</b>	<b>9,417</b>	<b>10,658</b>	<b>11,206</b>	<b>11,753</b>	<b>12,337</b>	<b>12,884</b>

*Note: The acre-feet conversion is presented for comparison with water demands.*

*Wastewater generation rates typically equal 70 to 80 percent of potable water consumption.*

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## Section 10: Recycled Water

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The City of Mountain View is working collaboratively with the City of Palo Alto and the Palo Alto Regional Water Quality Control Plant (RWQCP) on a project to supply recycled water, for landscape irrigation purposes, to Mountain View's Shoreline Regional Park and Golf Links, and the North Bayshore Area, home to many of Mountain View's major employers. A map of the recycled water project's service area is included as Figure 4 at the end of this section.

### Project Cost

The estimated total cost of the recycled water project is approximately \$16 million. Project costs will be apportioned between the City of Mountain View, Palo Alto and the RWQCP with Mountain View's share of the project cost being approximately \$8 million. Mountain View has also applied for and received a State grant in the amount of \$3.8 million to offset construction costs.

### Participating Agencies

The Cities of Mountain View, Palo Alto and the RWQCP are working together to design and construct the recycled water project and are also working with the SCVWD to address concerns regarding potential impacts of recycled water on certain types of landscape material, such as redwood trees. Table 41 on the following page lists all the agencies involved with this project and their role.

**Table 41: Recycled Water Project Participating Agencies**

<b>Participating Agencies</b>	<b>Agency Name</b>	<b>Role in Project Development</b>
<b>Water agencies</b>	City of Mountain View	Partner in project planning, design and construction.
	City of Palo Alto	Partner in project planning, design and construction.
	Santa Clara Valley Water District	Assisting with the development of the recycled water best management practices for landscape irrigation.
<b>Wastewater agencies</b>	Regional Water Quality Control Plant	Operator of the regional wastewater plant and partner in the recycled water project's planning, design and construction.

## Recycled Water Project Milestones

- In October 2004, met with North Bayshore Community for community outreach and adopted a recycled water ordinance in the City of Mountain View.
- In June 2005, \$3.8 million in grant funding received.
- In July 2005, consultant selected for project design.
- By January 2006, approve system plans and specifications. Prepare bid documents.
- By April 2006, begin construction.
- By October 2007, complete system construction and begin delivery of recycled water.

## Projected Recycled Water Use

The following table details Mountain View's projected use of recycled water in five, ten, twenty and twenty five years. At full capacity, the system could offset Mountain View's potable water use by up to 10%. However, the actual usage of recycled water will be dependant on the impact of recycled water on landscape. Recycled water has an inherently high salt content that may impact certain plant species, such as redwood trees found throughout the North Bayshore Area. Currently, there is no funding currently available to install advanced treatment processes to remove the salt content. Although the City is working with the SCVWD to identify ways to reduce the effect of recycled water on landscaping, it is unclear how the salt content will affect ultimate irrigation use.

**Table 42: Recycled Water Uses – Potential – AF/Y**

User type	Treatment Level	2010	2015	2020	2025	2030
Landscape	Tertiary	900	1,200	1,800	1,800	1,800
<b>TOTAL</b>		<b>900</b>	<b>1,200</b>	<b>1,800</b>	<b>1,800</b>	<b>1,800</b>

Table 43 below details recycled water production compared to the effective offset of potable water use. The offset is not 1:1 as recycled water must be applied at a high rate to landscapes to achieve the same level of absorption. This is due, in part, to the high salt content discussed above.



**Table 43: Effective Offset of Potable Water Use – AF/Y**

	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
Recycled Water Production	900	1,200	1,800	1,800	1,800
Estimated Potable Water Offset	600	900	1,200	1,200	1,200

## Recycled Water System Expansion

While increasing distribution beyond the Mountain View Recycled Water Project area is not planned at this time, Mountain View is exploring other regional options, including working with the Santa Clara Valley Water District for groundwater recharge and extending the proposed system to the City of Sunnyvale.

## Methods to Encourage Recycled Water Use

The Mountain View City Council approved a mandatory recycled water use Ordinance in October of 2004 requiring recycled water for irrigation use in the North Bayshore Area (Article V, Chapter 35 of the Mountain View City Code).

This ordinance specifies conditions where recycled water must be used, appeal procedures and penalties for non-compliance. Penalties include discontinuance of potable water service and a 50% surcharge for the use of potable water. Once the recycled water system is operational, the rate for recycled water will be less than the fresh water rate to further encourage its use. A copy of the Recycled Water Ordinance is attached as Appendix H.

**Table 44: Methods to Encourage Recycled Water Use**

<b>Actions</b>	<b>AF/Y of Recycled Water Use Projected from Proposed Action</b>				
	<b>2,010</b>	<b>2,015</b>	<b>2,020</b>	<b>2,025</b>	<b>2,030</b>
Reduced Recycled Water Rate	855	1,140	1,710	1,710	1,710
Fresh Water Use Surcharge	45	60	90	90	90
<b>TOTAL</b>	<b>900</b>	<b>1,200</b>	<b>1,800</b>	<b>1,800</b>	<b>1,800</b>

**FIGURE 4**

**PROPOSED RECYCLED WATER SUPPLY PIPELINE**

**(On Next Page)**

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Proposed Recycled Water Pipeline Alignment

